UMass Lowell
Computer Science Colloquium
Announcement

Speaker: Prof. Lee K. Jones, Dept. of Mathematical Sciences, UML
Date & Time: Wednesday, April 4, 2007, 3:00pm--4:00pm
Place: Olsen 412, Refreshments are served at 2:40pm

A Theory of Fusion for Machine Learning

Many methods have been proposed for learning the value of an unknown function f(x) at a query point xo based on knowledge of the function's values (with possible noise added) at given points {xj}. Furthermore, when statistically analyzed, different algorithms are often estimating different conditional expectations of the response (the observed Y = f(X) + noise where X is viewed as a random training point).

In this talk we describe a theory for optimally combining the estimates from a given set of such algorithms. The approach is to first characterize the worst case accuracy of each algorithm based on assumptions about the behavior of f(x) and then introduce two information-theoretic concepts relating accuracy of the combined estimate to the degree of conditioning of the final estimate with respect to the query xo.

Bio:

Lee Jones received the B.S degree in physics from Tufts University in 1965 and the M.S. and Ph.D. degrees in mathematics from Stanford University in 1968 and 1970, respectively.
Before moving to UMass Lowell in 1986 he held research positions at Lockheed Corporation, the Institute for Mathematical Statistics at the University of Gottingen, the Department of Mathematics of the Ohio State University, the MIT Lincoln Laboratory and the Naval Research Laboratory. He is currently Professor of Mathematical Sciences at the University of Massachusetts Lowell. Since coming to Lowell Dr. Jones has served as a consultant to the Naval Research Laboratory and has received grants from the Office of Naval Research, the German Research Foundation, the National Science Foundation and the Federal Highway Administration. He has authored numerous journal articles and technical reports in the fields of pure and applied mathematics, computer science, statistics, electrical engineering and operations research. He has served as a reviewer for Annals of Statistics, the SIAM Journal of Applied Mathematics, the IEEE Transactions on Information Theory, the Journal of the Optical Society of America, and Neural Networks. His present interests include probability and mathematical statistics, machine learning, queue inference methods for data mining, inverse problems, applications of pattern recognition to chemistry, information theory and discrete mathematics for statistics and operations research. Dr. Jones is a member of SIAM and IEEE.
